LJ-96-21 c.2

SOUTHWEST FISHERIES SCIENCE CENTER

NATIONAL MARINE FISHERIES SERVICE

SOUTHWEST FISHERIES SCIENCE CENTER P.O. BOX 271 LA JOLLA, CA 92038

DECEMBER 1996

Library
NOAA, National Marine Fisheries Service
SWFC Honolulu Laboratory F/SWC2
2570 Dole Street
Honolulu, HI 96822-2396

THE 1996 SWR/SWFSC CONFERENCE ON THE RESEARCH AND MANAGEMENT OF LARGE-PELAGIC RESOURCES AND FISHERIES

Edited by

Alan R. Jackson

ADMINISTRATIVE REPORT LJ-96-21

DECEMBER 1996

THE 1996 SWR/SWFSC CONFERENCE ON THE RESEARCH AND MANAGEMENT OF PACIFIC LARGE-PELAGIC RESOURCES AND FISHERIES

Edited by
Alan R. Jackson

Southwest Fisheries Science Center
National Marine Fisheries Science Center, NOAA
La Jolla, California 92038

ADMINISTRATIVE REPORT LJ-96-21

CONTENTS

INTRODUCTION 1

MEETING PROCESS 1

TEAM 1: PANAMA DECLARATION STRATEGY 4

TEAM 2: IMPLEMENTING DEPARTMENT OF STATE STRATEGY 6

TEAM 3: FISHERIES BYCATCH 10

TEAM 4: DATA SYSTEMS 13

TEAM 5: SCIENCE STRATEGY 16

TEAM 6: PROTOCOLS 18

TEAM 7: WHAT DO WE DO NOW...ASAP: WHAT ACTIONS ARE NEEDED WHILE OTHER ISSUES AND OPTIONS ARE EXPLORED? 23

ACKNOWLEDGMENTS 25

APPENDIX A. LIST OF PARTICIPANTS 26

APPENDIX B. CONFERENCE AGENDA 28

APPENDIX C. STATE DEPARTMENT "VISION STATEMENT" 30

APPENDIX D. U.N. PRECAUTIONARY APPROACH TO FISHERIES 43

Digitized by the Internet Archive
in 2025

https://archive.org/details/administrative-report-lj_1996-12_21

THE 1996 SWR/SWFSC CONFERENCE ON THE RESEARCH AND MANAGEMENT OF PACIFIC LARGE-PELAGIC RESOURCES AND FISHERIES

Edited by
Alan R. Jackson

Southwest Fisheries Science Center
National Marine Fisheries Science Center, NOAA
La Jolla, California 92038

INTRODUCTION

As one result of its annual program reviews, the NOAA/NMFS Southwest Regional Office and the Southwest Fisheries Science Center decided to hold a conference on the research and management of Pacific large-pelagic resources and fisheries. The need to bring all the SWR/SWFSC principal workers together for this conference became apparent when several researchers expressed a need to collaborate with their scientific and fisheries management colleagues on several topics and to learn of possible new policies, priorities or directions.

In view of several important recent developments (e.g., the State Department's "Vision Statement" regarding pelagic fish stocks in the Pacific Ocean, the formation of the Interim Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean, and the UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks), it made good management sense to discuss these events and raise the related programmatic and policy issues with all concerned. Consequently a steering committee of Region and Center managers was appointed to plan and carry out the event (Appendix A).

The Region and Center have held meetings on the subject of tunas and billfishes several times before. Although several short implementation planning conferences were held in recent years, the last joint policy development meeting regarding large-pelagic resources took place in 1990. Before that, only a few of the current staff were in attendance in the 1970s and 1980s when the so-called "San Clemente" meetings were held for exactly the same purpose–to bring all the Regional Office and Center staffs up to date on policies and directions regarding Pacific tunas, billfishes and sharks.

The conference was held at the Bahia Hotel at Mission Bay, San Diego, on October 8-10, 1996, and was attended by over thirty Southwest Region and Center staff and representatives of the NMFS Headquarters Offices (Appendix A).

MEETING PROCESS

The steering committee, meeting mostly by telephone, developed the conference scope and objectives based on the model of the earlier "San Clemente" meetings which involved

presentations of technical and policy material and the open discussion and addressing of the issues raised during the meetings. However, because the technical program reviews in the Center had recently taken place, it was felt that the upcoming conference should focus instead on status of stocks and outcomes of research and management and issues raised by recent external developments. It was also agreed to cover all the resources and fisheries in question, including discussion of some of the protected species initiatives of concern to these fisheries.

Scope of the Conference: The committee decided upon the following expression of the scope of the conference:

> All components of the large-pelagic complex were to be addressed–tunas, billfishes and sharks. In addition to the on-going research and management activities and plans, the conference would address breaking developments in the international fisheries arena, new laws pertaining to tuna-dolphin research and management, and other emerging research and management issues.

The committee recognized that an agreed upon approach to these issues was important for helping accomplish the major task at hand of ensuring that the research and management programs are well coordinated and coherently in-step with current and future management needs. Agreement was also needed to facilitate establishment of internal NMFS policies and communication lines and to help unify the position of NMFS on major issues.

Major Objectives of the Conference: The four major objectives of the Conference were:

1. To establish a common understanding of the SWFSC/SWR's on-going major research and management programs, projects and activities with respect to each major resource or fishery.

2. To establish a common understanding, at the Region and Center levels, of the extant and emerging issues regarding Pacific large-pelagic resources and fisheries.

- The conferees would address contemporary developments and issues such as the recent Department of State's "Vision Statement," recent international agreements, new bills and laws regarding tuna-dolphin research and management, reflagging, licensing, interactions with turtles, changes in the processing industry structure, and the new reporting requirements for high seas vessels, etc.

- A coordinated information matrix, summarizing important research and management information for each important resource/fishery, would be developed and presented by representatives of the various Offices, Labs and Divisions. Technical presentations of accomplishments, processes and approaches would be limited except to explain the emergence of important major scientific issues such as predicting ocean conditions and their effects on fish and fisheries and their management.

3. To define the NMFS/SWR/SWFSC major activities and initiatives to be accomplished over the next several years to meet and adequately address existing and emerging issues.

- The relationships among issues would be examined by a small management group with the objectives of distinguishing the more fundamental issues from the more symptomatic issues and from those in between, and for helping to establish the agendas for temporary work groups at the conference.

- The temporary working groups of the conference would specify requirements and options for solving, resolving or dissolving sets of related issues and present these to the conference for management's consideration and approval.

4. To design an improved Program Management System for the SWR's and SWFSC's projects and activities regarding large-pelagic resources and fisheries.

- Options would be developed and choices made to specify the Management System. Authorities and responsibilities for components of the NMFS/SWFSC/SWR large pelagic-resources program would be defined. Setting of lines of communication, establishment of coordination, reporting, and oversight mechanisms, and the specification of organizational structure would also be addressed.

Background Papers: Given the objectives of the conference, no extensive writing of background papers was necessary; instead copies of recent SWR/SWFSC plans and documents involving large pelagics were made available to participants as was a recent paper by the State Department outlining its vision for the Pacific fisheries (Appendix C).

Schedule of the Conference: The following is the general outline of the schedule followed by the conference. The agenda is provided in Appendix B.

	TUESDAY, 8TH	**WEDNESDAY, 9TH**	**THURSDAY, 10TH**
MORNING	INTROS AND PRESENTATIONS	RECAP ISSUES AND WORKSHOPS	REPORTS OF WORKSHOPS
AFTERNOON	PRESENTATIONS	WORKSHOPS	DESIGN OF MGT. SYSTEM

Teams and Workshops: Presentations were made by representatives of each SWR, SWFSC and Headquarters Office staff, outlining the current situation and the emerging issues from each perspective. During the presentations on the first day, a draft list of issues was developed, incorporating the issue statements from all the formal presentations plus a few that were added from members of the conference at large. Afterwards, the steering committee, together with the Regional Administrator and the Science Director designated and gathered the most important issues under seven general topics: (1) Panama Declaration Strategy; (2) Implementing

Department of State Strategy; (3) Fisheries Bycatch; (4) Data Systems; (5) Science Strategy; (6) Protocols; and (7) What Do We Do Now...ASAP. The conference members were then invited to volunteer as members of the teams to meet in subsequent mini-workshops. Four workshops were held in the morning and three in the afternoon on Wednesday, October 9, 1996.

The teams were asked to deliberate on the issues at hand, to come to a definition of them, to state the reason the issues were of concern to research or management of the Pacific large-pelagic resources and fisheries, and to present the viable options for addressing the issues. An explanation of the findings plus the best or recommended options was to be given in a presentation to the entire conference by a spokesperson from each group the following day.

The results of each team's deliberations, conclusions and presentation to the conference are given in the following sections.

TEAM 1: PANAMA DECLARATION STRATEGY

Issue: Should NMFS (SWR/SWFSC and HQ) exert proactive leadership in seeking passage of legislation to implement the Panama Declaration?

Description of the Issue: In September 1995, representatives of five major environmental organizations (the Center for Marine Conservation, the Environmental Defense Fund, Greenpeace, the National Wildlife Federation and the World Wildlife Fund) opened discussions with Mexican officials exploring the potential for a multilateral agreement that might both strengthen international dolphin conservation efforts and lift U.S. tuna embargoes. The outcome of those discussions was a Declaration of Panama, signed by 12 nations including the United States on October 4, 1995. The Panama Declaration endorses the success of the La Jolla Agreement and adjusts the marketing policy of dolphin-safe tuna in recognition of this success. In exchange for modifications of U.S. law, foreign nations agreed to modify and formalize the La Jolla Agreement as a binding agreement. Changes in U.S. law envisioned included: (1) lifting of primary and secondary embargoes on tuna caught in compliance with the La Jolla Agreement; (2) permitting access to the U.S. market for all tuna (both dolphin-safe and non-dolphin-safe) caught in compliance with the La Jolla Agreement by IATTC member nations or nations that had initiated steps to become IATTC members; and (3) redefining "dolphin-safe" to include ETP tuna caught in purse seine sets in which no dolphin mortalities were observed.[1]

---

[1]Buck, Eugene H. 1996. Dolphin protection and tuna seining. Congressional Research Service Report for Congress. Committee for the National Institute for the Environment. Washington, DC.

Without significant changes in U.S. law, Latin American nations threaten to abandon the International Dolphin Conservation Program, possibly resulting in significant increases in dolphin mortality. In mid-March 1996, in frustration with the slow pace of U.S. action on the Declaration of Panama, Mexican tuna fishermen announced that they would no longer participate in the IATTC's observer program nor abide by the IDCP dolphin mortality limits, and filed administrative petitions to carry observers in a Mexican national program. The Mexican government has not yet responded to this industry action. Subsequently, the Mexican fleet has agreed to carry IATTC observers, but abide by Mexican national mortality limits rather than IDCP limits.

The Stevens-Breaux Bill (SB-1420), legislation that would amend the Marine Mammal Protection Act to implement the Panama Declaration for the U.S., did not pass in the last session of Congress. Supporters have promised to put the legislation before the next session of Congress at the earliest opportunity. Proactive leadership by NMFS could help assure passage of appropriate legislation and make possible the implementation of the Panama Declaration.

Significance of the Issue:

- Not satisfactorily resolving this issue could mean the loss of a program that currently protects dolphins in the ETP, resulting in increased mortality of dolphins, lack of U.S. influence in the international fishery and loss of knowledge of the activities of that fishery.

- If the IATTC is no longer the vehicle for management of an international dolphin conservation program in the ETP, and consequently, there are no IATTC observers, there will be no observer dolphin-safe certifications, and therefore not even tuna that might have been caught dolphin safe could be imported into the United States.

- DOS and NMFS have agreed that the IATTC is one of three regional entities that should be the focus to develop a rational management program for highly migratory species in the Pacific Ocean. This cannot happen if the IATTC does not remain the strong conservation organization that it is now.

Options:

A. Do nothing.

- Strategic and tactical considerations which might have assured passage of the Stevens-Breaux Bill will not have been examined.

- Without passage, Latin American countries may withdraw from the International Dolphin Conservation Program, and IATTC may fail.

B. Discuss, as appropriate, with NOAA, DOC, DOS, environmental organizations, Congress and Latin American countries the strategies/tactics needed to assure passage of the legislation.

- Pursuing such discussions puts us in a proactive leadership role.

- Consequences of pursuing and failing should not make our position any worse.

Recommendation: Pursue Option B above and exert proactive leadership in seeking passage of the implementing legislation.

TEAM 2: IMPLEMENTING DEPARTMENT OF STATE STRATEGY

Issue 1: What are the roles of NMFS in fostering inter-regional cooperation and collaboration on highly migratory species (HMS) fisheries research, data collection and analysis and management?

Issue 2: What are possible organizational, program or administrative changes that would help the Southwest Region and Center implement the DOS strategy?

The DOS "Vision Statement" and strategy for the international conservation and management of pelagic fish stocks in the Pacific Ocean is provided in Appendix C. Here is an excerpt from that document:

> Pelagic fish stocks throughout the Pacific Ocean should be managed in a manner that ensures their long-term maximum sustainable use, and that is consistent with the UN Fish Stocks Agreement and U.S. interests. U.S. policy should be to

strengthen, harmonize or create, where necessary, international institutions to achieve these goals.

...This vision is predicated on three fundamental principles: (1) pelagic fish stocks in the Pacific Ocean should be managed in accordance with the 1995 United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks; (2) the Pacific Ocean is too large and the issues of each subregion too complex for most Pacific pelagic fish stocks to be managed effectively by one ocean-wide fishery organization; and (3) flexibility, since much of the initial focus in institutional building needs to be on data gathering and sharing, ensuring full participation, and setting the stage for management decisions when needed.

Description of Issue 1 (*What are the roles of NMFS in fostering inter-regional cooperation and collaboration on HMS fisheries research, data collection and analysis, and management?*):

- The various roles and responsibilities of NMFS at this time need to be clarified.
- SWR and SWFSC staffs are participating in a wide variety of activities that support the DOS strategy, but there is not shared information about what different staff/managers are doing to foster cooperation and collaboration.
- Once a common understanding is available, current activities can be compared with what we could or should be doing.
- Also, staff carrying out activities can then factor the knowledge of others' activities into their own planning and execution of responsibilities.

Significance of Issue 1: By clarifying roles and responsibilities, we will be better able to consider changes in organization, program activities or administrative procedures to ensure that NMFS is carrying out its responsibilities in an efficient and coordinated manner and achieving the best possible product from its investment of staff and other resources. This should also provide a sound basis for considering and developing appropriate proposals for program changes and additional resources to adequately support the implementation of the DOS strategy for achieving international cooperation and collaboration in HMS conservation and management.

Options:

A. Catalogue existing activities.

B. Define roles and responsibilities in some other manner.

Recommendation: Option A. Team 2 prepared a table that displays the kinds of activities in which NMFS staff are involved in each of the three geographic subregions as defined by the

DOS (Table 1). It should be noted that these are not listed in priority order. There should be an effort to expand and periodically update and improve the amount of information in the chart.

Table 1. Current NMFS activities and recommended roles, by Pacific Ocean subregion.

Activity	ETP		SPac		NPac	
	Current	Recommended	Current	Recommended	Current	Recommended
Membership	IATTC, ISC	IATTC, ISC	SPC, SPREP, SPAR, WPYRG	SPC, SPREP, SPAR, WPYRG	ISC, IATTC, NPAW	ISC, IATTC, NPAW
Research						
Fish Stocks	I	C	C	C	L, C	L, C
Economics	I (bycatch)	I (bycatch)	C	C	C	C
Environment	I	C	C	C	C	C
Cat/Eff Data						
Collection	C	C	C	C	C, I	C, C
Mgmnt	I	C	C	C	C, I	C, C
Sampling	None	None	L,C	L,C	C (Albacore)	C (Albacore)
Special Prblms						
Bycatch	L (gear, econ)	L (gear, econ)	C	C	C, L	C, L
Stock Assmt	C	C	?	?	C, L	C, L
Licensing	I (MMPA, HSFCA)	I (MMPA, HSFCA)	C	C	I	I
Enforcement	(Limited)	(Limited)	C	C	I	I
Import docs	L (SWR)	L (SWR)	L (SWR)	L (SWR)	L (SWR)	L (SWR)
Planning	C (Prot. Spp.)	C (Prot. Spp.)	C (research)	C (research)	C (research)	C (research)
Other agency/org involvement			ASEAN	ASEAN	PICES, SPC, FFA	PICES, SPC, FFA

I = Independent; C = Collaborative; L = Lead

Description of Issue 2 (*What are possible organizational, program or administrative changes that would help the Southwest Region and Center implement the DOS strategy?*):

- Changes in organization, program contents or administrative procedures could result in improved benefits from Southwest Region or Center activities in terms of implementation of the DOS strategy.

- Such changes could result in greater efficiency, better coordination of Region and Center efforts, or improved quality or timing of products from different program activities.

- Gaps in activities may be identified.

- The need for additional resources may be established with documentation that the best use is being made of existing resources.

Significance of Issue 2: Implementation of the DOS strategy will require a clear understanding of who is now doing what and consideration of changes in program structure and procedures. If no additional resources are to be forthcoming, it is all the more critical that existing programs and activities be evaluated for possible change to ensure maximum results from available resources in terms of pursuit of the DOS strategy.

Options:

A. Consider changes.

B. Let changes evolve.

Recommendation: Team 2 brainstormed a number of possible changes. They are not proposed in any priority order, nor did the team consider criteria for determining priorities:

- Staff Exchange Program (inter-agency and intra-NMFS); e.g., exchange with South Pacific Commission.

- Raise priority of liaison function with external organizations such as IATTC, Interim Scientific Committee; e.g., delegation of responsibility for direct scientist communication, increased frequency of meetings/activities.

- Establish guidelines to promote interactions between Region and Center staff and other organizations; e.g., include more international activities in annual performance plans.

- Foster and encourage individual collaborative projects; e.g., provide more recognition and awards for international collaboration.

- Increase communication among DOS, NMFS, HQ, SWR, SWFSC; e.g., set up more rotational assignments with HQ, convene more teleconference calls.

- Foster input from and feedback to industry, coastal states and NGOs; e.g., broaden the distribution of reports presenting the results of international collaboration and seek ideas for international research or data collection.

- Ensure active involvement of Fishery Councils in this process; e.g., ensure that councils are represented in planning.

- Provide resources to implement changes; e.g., increase allocation for international travel for collaboration.

- Convene NMFS/DOS meeting to initiate planning to implement the DOS Vision Statement (kickstart); prepare memo for Assistant Administrator Schmitten to send to DOS Deputy Assistant Secretary for Oceans as soon as possible.

TEAM 3: FISHERIES BYCATCH

Issue: NMFS management actions to limit or reduce the fisheries bycatch of fish, sea turtles, marine mammals or seabirds are required under the Magnuson Fishery Conservation and Management Act, the Marine Mammal Protection Act and the Endangered Species Act.

Significance of the Issue: The limitation or reduction of bycatch in Pacific large-pelagic fisheries imposes constraints on fishery management policies for target species and may have serious economic, social and political implications. Given the increasing concerns about bycatch, NMFS compliance with legislative mandates will be closely scrutinized by conservation groups, commercial and recreational fishing interests and other constituents and may be tested in the courts.

NMFS must develop and implement a comprehensive bycatch strategy involving four basic elements: (1) estimating the magnitude and composition of the bycatch in Pacific large-pelagic fisheries; (2) assessing the impacts of projected bycatch levels on the sustainability or recovery of affected marine populations; (3) developing and implementing bycatch impact mitigation measures; and (4) assessing the socioeconomic impacts of proposed mitigation actions on various resource users (e.g., harvesters, processors, and consumers).

The SWR has a representative on the NOAA Fisheries Bycatch Team and is preparing a document giving an overview of bycatch problems in the SWR, including those associated with fisheries for large pelagics.

Key Problems and Options:

1. A workable definition of "bycatch" for the SWR that incorporates the incidental killing of protected species and non-target fish species and discarding of fish parts is lacking.

- Stress to constituents the importance of defining "bycatch" and involve them in reaching a workable definition for the SWR.

- Provide the SWR perspective on the definition of bycatch to the national policy process.

2. The status of the populations of bycatch species is inadequately known.

- Determine the genetic stock structure (stock identity) and population dynamics of bycatch species.

- Estimate the magnitude of the bycatch by species and fishery.

- Conduct stock assessments on high priority bycatch species.

- Assess impacts of fisheries bycatch on affected populations of fish, sea turtles, marine mammals and seabirds (USFWS).

3. The reporting of bycatch by fishing vessels is inadequate for accurate assessment of bycatch magnitude and composition.

- Educate and motivate fishermen to improve their reporting of bycatch.

- Enforce bycatch regulations (e.g., reporting requirements).

- Establish and maintain scientific observer programs to estimate bycatch rates and collect data for development of mitigation measures.

4. The socioeconomic impacts of potential bycatch management strategies have not been quantified.

- Conduct socioeconomic analyses of bycatch management policies.

5. Effective management of bycatch issues in Pacific large-pelagic fisheries requires multi-national cooperation, but foreign nations engaged in fishing for Pacific large pelagics or providing breeding habitat for protected species (e.g., turtle nesting beaches and adjacent marine habitat) are not sufficiently involved with NMFS in jointly addressing the bycatch issue (e.g., lack of common goals, lack of mutual access to critical data).

- Identify foreign nations significantly involved with Pacific large-pelagic fisheries bycatch.

- Educate foreign nations about U.S. concerns regarding bycatch, relevant U.S. laws and policies, and U.S. programs to monitor bycatch, assess bycatch impacts and develop mitigation measures.

- Develop multinational cooperative programs for bycatch research, monitoring, assessment and mitigation.

6. In general, there is a public perception in the U.S. and many other countries that it is wasteful to kill a fish and then discard most or all of it.

- Provide the SWR perspective on fish bycatch as "waste" to the national policy development process.

7. Economically viable means to mitigate "waste" through increased utilization of bycatch are lacking.

- Develop markets for "wasted" fish bycatch.
- Investigate food processing technology to increase fish bycatch utilization.

8. Effective means to mitigate bycatch are generally lacking or have not been implemented.

- Develop programs to educate fishers and the public about bycatch issues.
- Develop gear modification to reduce bycatch.
- Evaluate fishery regulations (e.g., spatial and/or temporal area closures) to reduce bycatch.
- Collaborate with other agencies (e.g., USFWS) in developing and implementing bycatch mitigation measures.

9. Cultural differences in the utilization of fish affect the bycatch issue in several ways, from the definition of "bycatch" to the development and implementation of practical bycatch mitigation measures.

- Identify cultural differences in the perception of bycatch.
- Promote acceptance and respect for the diversity of cultural values amongst constituents of the SWR and take these values into consideration when formulating bycatch policies.

10. The SWR lacks adequate resources to address the bycatch issue.

- Establish multi-year budgets.
- Provide more money and people.
- Document the issues.

TEAM 4: DATA SYSTEMS

Issue 1: No comprehensive large-pelagic fisheries data systems strategy exists.

Issue 2: Enhancement of data collections required for most fisheries.

Issue 3: Enhancement of data management and processing required.

Issue 4: Enhancement of data access required.

Issue 5: Enhancement of data analysis required.

Significance of the Issues: Current SWR Pacific large-pelagic data systems are barely keeping up with the increasing demands of research and management. These data systems are used by the SWR in stock assessments, fishery performance and monitoring, assessments of management impacts and environmental impacts. Fisheries data are collected through self reporting, port sampling and observer programs. The data are, in many cases, difficult to access and analyze, and the data collections are difficult to interpret. Information and data collection technology has now improved to the point where many of these increasing data system needs and problems can be addressed.

To meet future needs of the SWR in monitoring and maintenance of Pacific large-pelagic stocks, enhancements are needed in the areas of data collection, data management and processing, data access and data analysis. Considerations should include both fishery dependent and fishery independent data and both domestic and foreign data sources. Data should not only include the basic catch, fishing effort and location, but also extend to environmental and socioeconomic data. Data system issues are not unique to the SWR and extend to other Regions and throughout the Agency.

Issue 1 (*No comprehensive large-pelagic fisheries data systems strategy exists*): SWR data collection and data management systems are sometimes developed independently. These independent efforts usually lead to different procedures being employed. These differing procedures lead to inefficiencies in accessing data systems and in the interpretation of data sets.

Option: Develop a strategy for the implementation of data collection and management systems and coordinate routinely with HQ. This strategy could be for the SWR but should also encompass HQ standards.

Issue 2 (*Enhancement of data collections required for most fisheries*): Both fishery dependent data and fishery independent data are collected at the SWR. Issues related to these data collections are in the areas of data gaps or missing data in both foreign and domestic collections, under reporting (especially in self reporting data collections), lack of access to both domestic and foreign data collections, data validity or questionable data and the enforcement of data reporting

requirements, consistency of data formats and collection procedures, timeliness of data collections, documentation of data collection changes, decisions on types of data needed, and the application of sampling designs for determination of sample size and sampling procedures. Issues unique to fishery independent data collections include the lack of research vessels and/or personnel, difficulties in sustaining comprehensive programs and the need to refine new technologies such as LIDAR and archival tags.

Options: (*Fishery dependent data collections*):

- Since some of the current data collection systems rely on voluntary submission of fishing information and since the coverage rates of these voluntary programs are low, the SWR should reduce its reliance on this self reporting. The new High Seas Fishing Compliance Act should be helpful in this area.

- Enhanced fishing information coverage rates can also be obtained through port and observer sampling. Observer sampling seems to be the best alternative because all information is gained "first hand."

- A remote vessel monitoring system (VMS) is currently used, however mostly to monitor time and positions of vessels. The SWR should explore other types of data that could be monitored by this technology and should also look at other surveillance high technologies that may be appropriate.

- The SWR observer programs probably collect the most accurate fishing information from U.S. fishing fleets. These programs are very costly and many are running below targeted sampling coverage rates. NMFS is in the process of developing and implementing an observer policy. This policy is needed by the SWR in order to handle its programs.

- NMFS has started a Core Statistics Program to establish the types of fisheries and biological data that should be collected. The results of this program are needed by the SWR before efforts to enhance their data systems can be completed in order to ensure a coordinated effort.

- Reported fisheries data are sometimes inaccurately recorded. Enforcement of reporting requirements is needed to lessen the occurrence of these inaccuracies.

Options: (*Fishery independent data collections*):

- The SWR uses research vessels or contracts with fishing vessels in order to conduct fishery independent research. New developments in NOAA Corps and decreases in funding have limited access to these types of platforms. The Office of Science and Technology needs to continue efforts to obtain replacement vessels and acquire funding for charters where research vessels are not available.

- New technology such as satellite sensing applications (Synthetic Aperture Radar) is available for detecting fish schools. The SWR should evaluate this technology through contract.

- The SWR should encourage the Office of Science and Technology to fund research on new methodologies and uses of fishery independent data for evaluation of pelagic fish stocks.

Issue 3 (*Enhancement of data management and processing required*): Issues in the management and processing of data at the SWR are in the areas of adequate and accessible documentation of data systems and processing procedures, data base designs and strategies, reviews of different technologies, consideration of storage, data entry, verification and validation issues and update strategies, and considerations of security and confidentiality.

Options:

- Some data are inaccessible mainly because their existence is unknown. The SWR and HQ should proceed immediately to develop on-line data catalogs. Redundancies between data catalogs would need to be resolved.

- An enterprise system (system encompassing all data and data applications of the SWR) for Oracle should be developed semi-independently (efforts are independent with frequent communication of results and strategies) at the SWR level and HQ level (Office of Operations, Management and Information and Office of Science and Technology) with the expectation that differences between systems will be resolved at a penultimate stage.

- With the development of Oracle data systems, management of independently downloaded data sets will become very important. A policy statement by the SWR/HQ regarding the official data set will be needed.

Issue 4 (*Enhancement of data access required*): Issues concerning data access are in the areas of confidentiality and security, lack of on-line data catalogs, lack of easy access, data hoarding of both domestic and foreign data sets, timeliness of data sets, compatibility between data systems, and lack of access to foreign data.

Options:

- The deliberate non-release of data until personal research is completed ("data hoarding") may be a problem in the SWR. HQ needs to develop a general policy statement on data hoarding that includes an agreed upon period for nondisclosure of data while research is conducted and guidelines for use of as-yet-unpublished data collected by other researchers.

- Review and implement electronic access technologies such as Internet Web pages to increase the scope and efficiency of data access.

Issue 5 (*Enhancement of data analysis required*): Issues concerning data analysis are in the areas of reproducibility of analyses though adequate documentation of what was done and the versions of data sets used, automated methods such as menu-driven software for generation of routine summaries, links to analytical tools such as SPLUS and GIS, and diagnostic software that allows flaws in data, found during analyses, to automatically flag changes to collections and data systems.

Options:

- There is a lack of necessary tools for efficient processing of data for research, fishery management or for dissemination of data to the public or fishery councils. The SWR should canvass or engage user groups to address future needs in analysis and summary tools.

- Computer technology can now supply the tools needed to make analysis and summary of data systems more user friendly thereby increasing the use of these analyses and summaries by the layperson. The SWR should support menu-driven, point-and-click analysis and summary development.

- To keep progress on enhancements on-track, the SWR should designate a person tasked with the periodic tracking and reporting of the implementation of data system recommendations.

TEAM 5: SCIENCE STRATEGY

Issue 1: How do we apply the precautionary approach?

Issue 2: How do we prioritize research and species? Given all the research needs and limited budgets and staff, how do we determine what to do?

Issue 3: How do we incorporate information on the environment, ecosystem, fishery dynamics and stock assessment into integrated management advice?

Objectives:

- Provide technical information for management advice.

- Conduct research to improve information provided to management.

Philosophy:

- Adopt the ***precautionary approach*** as defined by UN Conference on Straddling Fish Stocks and Highly Migratory Fish Stocks and the UN Code of Conduct.

- Adopt environment-resource-fishery ***integrated approach***–take a complete system view.

- Be ***pro-active***–act in anticipation of developments and problems.

Issue 1 (*How do we apply the precautionary approach?*): The precautionary approach as described in the recent UN Code of Conduct, to which the U.S. adheres, represents a shift in fishery management paradigm and will require major changes in NMFS in the way we provide management advice (Appendix D). Under this approach, a greater amount of precaution is presumed necessary and is taken in formulating management advice when little research has been done and assessments are unreliable. Thus a precautionary approach would presume the necessity of lower harvest rates (catch or effort limits) when reliable information about the population or ecosystem is lacking than might be necessary once ignorance is reduced through investment in research and assessment programs (e.g., see Figures 1 and 2). Significant aspects of the precautionary approach are that it is risk-averse and that it shifts the burden of proof as to the safety of a proposed harvest policy. Thus before approving a proposed harvest policy (or other management action) NMFS must require a rigorous demonstration that the policy is safe (entails an acceptable level of risk) rather than simply assume the policy is safe *a priori* absent data showing otherwise.

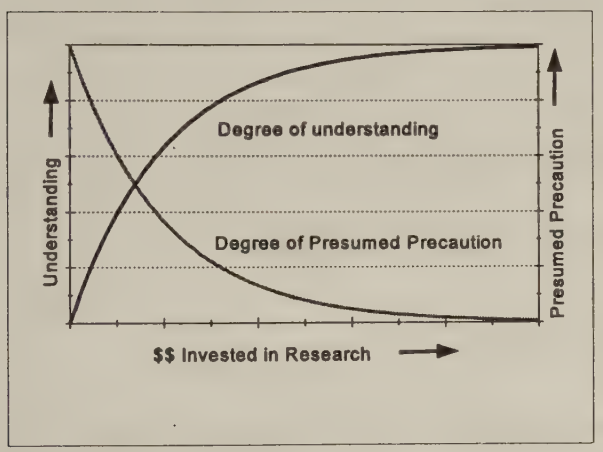

Figure 1.

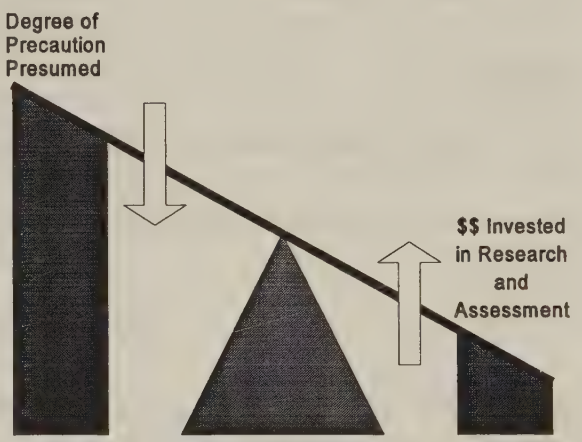

Figure 2.

Options:

- Gradually phase in the Precautionary Approach.

- Apply the Precautionary Approach everywhere right now.
- Apply the Precautionary Approach to selected species (a recommended option).
- Look to NMFS/Headquarters for guidance (a recommended option).

Issue 2 (*How do we prioritize research and species? Given all the research needs and limited budgets and staff, how do we determine what to do?*)

Options:

- Results from Issue 1 will determine species, areas and topics which get high priority.
- Look to international commitments and agreements (e.g., ISC, SPAR, Panama Declaration) to determine research priorities (a recommended option).
- Place high priority on environment research and/or other topics which improve understanding of the whole system and address multiple species (a recommended option).
- Seek Congressional guidance (a recommended option).

Issue 3 (*How do we incorporate information on the environment, ecosystem, fishery dynamics and stock assessment into integrated management advice?*)

Options:

- Apply this approach in the North Pacific pelagic ecosystem.
- Promote this approach worldwide through international cooperation.

TEAM 6: PROTOCOLS

Issue 1: Who should pay for the remote vessel monitoring system (VMS) equipment? Pay VMS transfer of data? Industry? NMFS?

Issue 2: What is NMFS policy on observer programs?

Issue 3: Should the Southwest Region seek funds and/or FTEs to deal with the additional workload due to the NMFS Headquarters reorganization (under which the responsibility for IATTC (Tuna-Dolphin) changed from the HQ International program to the SWR/SWFSC)?

Issue 4: How should the management (and science) of Atlantic and Pacific large-pelagic species fisheries be coordinated?

Issue 5: What are the SWR/SWFSC/HQ protocols for coordinating the management of Pacific large-pelagics fisheries?

Description of Issue 1 (*Who should pay for the VMS equipment? Pay VMS transfer of data? Industry? NMFS?*):

- The NMFS (and other entities) is looking to the use of VMS requirements to assist in enforcement of fishery management plans and other regulations.

- A pilot project under which NMFS enforcement placed VMS units on Hawaii-based longline vessels began almost two years ago, and there has been some movement toward a VMS requirement in the Northeast groundfish and scallop fisheries.

- NMFS has published "guidelines" for the application of VMS requirements through FMPs and could extend these guidelines to other situations (e.g., high seas licensed vessels).

- If VMS is to be required, however, the question arises whether industry or NMFS should bear the cost.

Significance of Issue 1: The NMFS guidelines indicate the types of circumstances in which VMS requirements would be appropriate, with special emphasis on enforcement of area closures but also with the acknowledgment of potential use to assist in vessel safety and rescue operations and reporting or data record keeping programs. This is clearly a national issue, as fishers in all areas could be impacted by the added costs of hardware and/or messaging unit costs. A NMFS policy should provide clearer guidance to fishery management councils and others as to the likelihood of VMS application and associated costs in different fisheries.

Options:

A. Follow current course (see below).

B. Propose alternate course.

Recommendation: It is premature to establish a policy at this time. The pilot program in the Southwest Region needs to be fully evaluated to determine clearly whether the VMS experiment was a success and the implications for future application. The report on the program and the evaluation must involve Enforcement and NOAA General Counsel as well as NMFS staff in science, fisheries management, protected resources and habitat programs. Then the NMFS

guidelines should be reviewed and evaluated in light of the test in the longline fishery. Finally, policy should be established.

Description of Issue 2 (*What is NMFS policy on observer programs?*):

- NMFS carries out observer programs under a variety of statutes, including the Magnuson Act and the Marine Mammal Protection Act.

- There are varying degrees of coverage, and funding is generally limited and tenuous in many instances.

- The Hawaii longline fishery is covered by a mandatory observer program with major funding from the Office of Protected Resources because the principal purpose is to document turtle interactions. There is no assurance of funding, so there has been consideration of requiring that the owners of observed vessels pay the cost.

- However, it would be inconsistent to require industry to pay the cost in the Hawaii program and not in other programs.

- This situation prompted the Southwest Region to initiate the development of a NMFS policy, and a draft NMFS policy paper established a general philosophy that the fisher should pay (the cost of doing business).

Significance of Issue 2: A NMFS-wide policy will make it easier to consider whether to include an observer requirement in many fisheries. A consistent policy for industry to pay the cost could mean that observer programs would be reasonably funded at levels needed to provide statistically sound data without major NMFS budget problems. Without secure funding, it is difficult to plan adequately for continuing coverage. However, an "industry pays" policy would likely result in substantial political inquiries and/or criticism.

Options:

A. Current approach.

B. New approach.

Recommendation: The Executive Board has assigned to the Office of Sustainable Fisheries and a team of Executive Board members the tasks of (1) finalizing the observer policy and (2) preparing an implementation plan for the new observer policy throughout U.S. fisheries. It is recognized that different statutes provide different authority for making fishers pay the cost (i.e., not authorized under MMPA). Among the issues are how to fund observer programs, how to determine the appropriate level of coverage, and how to accommodate the lack of authority to

establish an industry-wide funding pool by regulations at this time. The target time for the team's report to the Executive Board is January 1997.

Description of Issue 3 (*Should the Southwest Region seek funds and/or FTEs to deal with the additional workload due to the NMFS Headquarters reorganization (under which the responsibility for IATTC (Tuna-Dolphin) changed from the HQ International program to the SWR/SWFSC)?*):

- The SWR/SWFSC have the NMFS lead for working with the IATTC.
- The SWFSC Director currently serves as a U.S. IATTC Commissioner.
- The SW Regional Administrator serves as Chair of the U.S. Delegation on the International Review Panel concerned with the tuna-dolphin controversy.
- Until reorganization, HQ (F/IA) staff provided substantial staff assistance to the U.S. Commissioner (then also in NMFS Headquarters) and was responsible for coordinating the activities of the Advisory Panel and ensuring that members receive all the information they need ahead of time.
- Meanwhile, SWR involvement in IATTC related events has been increasing, with a NOAA Corps officer working full time on these activities but soon to be placed on an extended leave of absence; it is not clear if there is even a potential for a replacement. Given the level of work required, it is very important that there be dedicated staff to carry it out. (See report of Team I for more information relevant to this issue.)

Significance of Issue 3: The IATTC tuna-dolphin program and related issues constitute an issue of great importance to the administration, with White House interest. This is a critical time for IATTC, as other nations want to resolve the tuna embargo issue. NMFS and NOAA General Counsel have been assisting in the development of legislation to resolve the tuna embargo and continue to protect dolphins. If the Panama Declaration leads to the expected legislation, then the workload on the Region and Center will likely expand.

Options:

A. Status quo (seek replacement for NOAA Corps officer while on maternity leave).

B. Seek permanent FTE for SWR.

C. Assign Office of Protected Resources staff to do the work full time.

Recommendation: Seek additional permanent staff for SWR.

Description of Issues 4 and 5 (*How should the management (and science) of Atlantic and Pacific large-pelagic species fisheries be coordinated? What are the SWR/SWFSC/HQ protocols for coordinating the management of Pacific large-pelagics fisheries?*): If there is inadequate coordination and communication, several problems could arise:

- Management in one area could inadvertently affect the fishery or management in the other area.

- NMFS could be accused of fostering inconsistent management decisions.

- Management in one area could result in added but unplanned for workload in another area.

- Managers in one area would not be aware of the potential for adoption in that area of measures that were successful in another area.

Significance of Issues 4 and 5: Pelagic fisheries in the Atlantic and Pacific constitute important and highly visible fisheries. Management is difficult enough without adding burdens from inconsistencies or from decisions made without consideration of impacts in or implications for other areas. At the very least, NMFS should not expose itself to criticism from industry, environmental organizations or councils due to failure to communicate internally. This is especially important if councils are resisting NMFS policy proposals or management initiatives. Failure to coordinate effectively will likely result in irreconcilable problems in managing the fisheries.

Options:

A. Do nothing.

B. Improve communications and coordination.

Recommendation: It was agreed that the SWR has the lead for pelagics fisheries in the Pacific, but that improved coordination will require action by the SWR as well as HQ. Option B is preferred, with specific coordination steps being as follows:

- Senior managers (SES) need to ensure that their respective program areas are coordinated and integrated with each other to the extent necessary.

- The Director of the Office of Sustainable Fisheries will ensure that the Directors of SWR and SWFSC receive all information he receives on HMS management in the Atlantic, and F/SWR and F/SWFSC will do the same on Pacific pelagics matters.

- Atlantic HMS staff should participate in all pre-brief calls concerned with upcoming fishery management councils meetings (3 councils) dealing with HMS issues in the Pacific.

- Periodic conference calls should be scheduled among SWR, SWFSC, Atlantic HMS and others as necessary to ensure timely exchange of information and views.

- Offices of Sustainable Fisheries and Science and Technology should be involved and informed about decisions concerning pelagics fisheries data collection in the Pacific (PacFIN, WPacFIN, AkFIN).

- Coordination among scientists also is needed.

- A draft of SWR Director Diaz-Soltero's presentation to the Highly Migratory Species Symposium should be forwarded to Assistant Administrator Schmitten and Deputy Assistant Administrator Foster for clearance as it will confirm SWR lead in Pacific HMS issues.

TEAM 7: WHAT DO WE DO NOW...ASAP: WHAT ACTIONS ARE NEEDED WHILE OTHER ISSUES AND OPTIONS ARE EXPLORED?

Issue: Some U.S. policy and subsequent management actions may hinder U.S. positions in future international negotiations regarding fisheries for large pelagics. Fishery management decisions are sometimes made that are not (1) consistent with the mission of NMFS and/or (2) based on the best available scientific information.

Significance of the Issue: Such irrational decisions could potentially reduce the U.S. share/access of internationally allocated resources and damage our credibility as advocates for international management. Examples of such decisions:

- Restrictions on U.S. purse seiners in the ETP to reduce bycatch below levels necessary for conservation or required by the NMFS mission.

- Restriction of the Hawaii-based longline fishery outside the EEZ to limit fleet growth and, consequently, U.S. share of the international catch.

- The high-seas drift net moratorium (no U.S. share lost, but not necessarily consistent with best available scientific information).

Policies that may engender such decisions include (1) the Magnuson Act requirement to approach zero bycatch, (2) a potential Magnuson Act interpretation requiring unilateral reduction of U.S. fishing if overfishing occurs even when U.S. contribution to fishing mortality is minor,

and (3) the NMFS strategic goal to implement limited entry programs (e.g., not necessarily appropriate when applied to U.S. pelagic fisheries on the high seas).

Options:

- Ensure that those who commit/authorize various fishery management actions both inside and outside NMFS know the alternative actions available and how their actions may affect NMFS/U.S. international positions.

- NMFS needs to anticipate problems, become pro-active and educate decision makers (e.g., Congress) and disseminate public information regarding consequences of various actions as early as possible. Stop whining after the fact!

- NMFS should develop and articulate policies that take into account the international implications and relative effectiveness of domestic management actions.

- To best conserve pelagic stocks exploited largely by foreign fleets, the U.S. should promulgate policy that can be advocated for all fleets rather than extremist policies that can only be implemented domestically. For example, the zero bycatch provision of the Magnuson Act may not be supported by best available scientific information and may not be consistent with established international policy.

- In order to effectively participate in international management decisions, the U.S. must remain a participant in the fishery. If overfishing is detected, a measured response should be employed to limit U.S. fisheries to the same extent as would be necessary to rebuild the stock if the same response were applied proportionally to all the nations (as opposed to closing the U.S. fishery and eliminating our participation).

Immediate Actions:

- Implement requirements of the United Nations Resolutions and Code of Conduct (e.g., specific biological indicators, licensing, reporting).

- Zero bycatch (fish) in large-pelagic fisheries is unlikely. For most pelagic species some removals (bycatch) can occur without impacting the population. This approach has been applied to protected species in the form of PBRs. This type of approach can/should be promoted as policy and be applied to pelagic bycatch species.

- SWR/SWFSC must be leaders in defining Magnuson Act "bycatch."

- SWR should assign individuals the responsibility of identifying developing issues nationally, as well as within the Region, that may result in national policy change.

ACKNOWLEDGMENTS

The contents of this report were provided by the conference facilitator and the seven conference workshop teams. Transcription of the contents from various media was done by Martha Higa, SWFSC Honolulu Laboratory. This report was reviewed by Norman Bartoo, David Mackett and Susan Smith of the SWFSC La Jolla Laboratory, Jerry Wetherall of the SWFSC Honolulu Laboratory and Svein Fougner of the SWR in Long Beach, CA.

APPENDIX A. LIST OF PARTICIPANTS

Au, David	F/SWC1 - La Jolla CA - Pelagic Fisheries Resources Division
Balazs, George	F/SWC2 - Honolulu HI - Protected Species Investigation; Leader, Marine Turtle Research Program
*Bartoo, Norm	F/SWC1 - La Jolla CA - Pelagic Fisheries Resources Division
Boehlert, George	F/SWC4 - Pacific Grove CA - Director, Pacific Fisheries Environmental Group
Boggs, Christofer	F/SWC2 - Honolulu HI - Chief, Fish Biology & Ecology Investigation
Cain, Wanda	F/PR2 - Silver Spring MD - Office of Protected Resources
Cline, Marc	F/EN - Honiara, Solomon Islands - Enforcement
Coan, Al	F/SWC1 - La Jolla CA - Pelagic Fisheries Resources Division
DeMartini, Edward	F/SWC2 - Honolulu HI - Fish Biology & Ecology Investigation
Diaz Soltero, Hilda	F/SW - Long Beach CA - Director, Southwest Region
DiNardo, Gerard	F/SWC2 - Honolulu HI - Stock Assessment Investigation; Leader, Swordfish Research Team
Edwards, Elizabeth	F/SWC1 - La Jolla CA - Marine Mammal Division
Fougner, Svein	F/SW011 - Long Beach CA - Fisheries Management Division
@Higa, Martha	F/SWC2 - Honolulu HI - Secretary to the Laboratory Director
Holts, David	F/SWC1 - La Jolla CA - Pelagic Fisheries Resources Division
Ito, Russell	F/SWC2 - Honolulu HI - Fishery Management & Performance Investigation
@Jackson, Al	F/SWC1 - La Jolla CA - Pelagic Fisheries Resources Division
Kleiber, Pierre	F/SWC2 - Honolulu HI - Stock Assessment Investigation

*Laurs, Mike	F/SWC2 - Honolulu HI - Director, Honolulu Laboratory
*Lecky, Jim	F/SW03 - Long Beach CA - Chief, Protected Species Division
*Mackett, David	F/SWC - La Jolla CA - Planning Officer
Matlock, Gary C.	F/SF - Silver Spring MD - Office of Sustainable Fisheries
McCallum, James	F/SW033 - Honolulu HI - Pacific Area Office
*McInnis, Rod	F/SW01 - Long Beach CA - Chief, Fisheries Management Division
*Neal, Richard A.	F/SWC - La Jolla CA - Director, La Jolla Laboratory
Nitta, Eugene	F/SW033 - Honolulu HI - Pacific Area Office
Oliver, Chuck	F/SWC1 - La Jolla CA - Marine Mammal Division
Parrish, Richard	F/SWC4 - Pacific Grove CA - Pacific Fisheries Environmental Group
Polovina, Jeffrey	F/SWC2 - Honolulu HI - Chief, Ecosystem & Environment Investigation
*Sakagawa, Gary	FSWC1 - La Jolla CA - Chief, Pelagic Fisheries Resources Division
Skillman, Robert	F/SWC2 - Honolulu HI - Stock Assessment Investigation; Coordinator, Oracle Development Team
Tillman, Michael	F/SWC - La Jolla CA - Director, Southwest Fisheries Science Center
*Wetherall, Jerry	F/SWC2 - Honolulu HI - Chief, Stock Assessment Investigation
Witzig, John	F/ST - Silver Spring MD - Office of Science & Technology

* = Steering Committee @ Secretariat

Behind the Scenes Contributors = Roy Allen, Barb Engstrand, Stan Krom, Nancy La Roche, Merle Marrow, Thanh Vu, and Bobbi Watkins

APPENDIX B. CONFERENCE AGENDA

Tuesday October 8. Main Conference Room - Aboard the William D. Evans

9:00 Introductions & orientation

9:30 Presentations and discussions on Issues and Responsibilities

9:30-10:00	Dept. of State.... Fougner for Hallman
10:00-10:30	SWC Honolulu Laboratory...Laurs

!0:30 Break

10:45-11:15	SWC Pelagic Fisheries Resources Division...Sakagawa
11:15-11:45	SWC Pacific Fisheries Environmental Group...Parrish

12:00 Lunch

1:30 Continue presentations and discussions of Issues and Responsibilities.

1:30-2:00	SWC Marine Mammal Division...Edwards
2:00-2:30	SWR Protected Species Division....Lecky
2:30-3:00	SWR Management Division....McInnis

3:00 Break

3:20-3:40	SW General Counsel....Hochman
3:40-4:00	SW Enforcement...Proulx
4:00-4:20	Office of Science and Technology F/ST...Witzig
4:20-4:40	Office of Protected Resources F/PR...Cain
4:40-5:00	Office of Sustainable Fisheries F/SF...Matlock

5:10 Planning session to structure issues - Directors and Division Chiefs

Wednesday Oct 9

9:00 Recap of issues, workshop assignments, instructions

9:30 Begin first round of workshops

12:00 Lunch

1:30 Workshop assignments, instructions

4:30 Finish workshops

Thursday Oct 10

9:00 Summaries of workshop results (one or two overhead slides; approximately 15 minutes each), comments and options for addressing issues.

12:00 Lunch

1:30 Design of program management system - SWR/SWC staffs will address the questions "What are the administrative, managerial, communication, and coordination problems we need to address to manage the large pelagics program efficiently?"; "What are the options for resolving those problems?"; and "What are the best options?"

4:30 Follow-up assignments

APPENDIX C. STATE DEPARTMENT "VISION STATEMENT"

United States Department of State

Bureau of Oceans and International Environmental and Scientific Affairs

Washington, D.C. 20520

JAN 23 1996

Mr. Rolland Schmitten
Assistant Administrator for Fisheries
National Marine Fisheries Service,
National Oceanic & Atmospheric Administration
1315 East West Highway
Silver Spring, Md. 20910

Dear Rollie:

Hilda has recently written to me regarding alternative approaches for pursuing the management of pelagic fisheries in the Pacific Ocean; and, as we discussed with Will Martin a few days ago, this is a complicated matter to which we need to give attention.

We have given considerable thought to developing a strategy for how best to advance U.S. interests in the international conservation and management of Pacific highly migratory species. Enclosed is a paper which we prepared to analyze this matter and to help in the formulation of an effective U.S. approach. I hope that you can review it in-house, and if you are in agreement, we can proceed to share it with U.S. constituent interests.

We believe we should examine the issue internationally in subregional terms, and should tailor the United States approach accordingly. There is good reason to do this from both a management perspective, based on the biology of the various Pacific highly migratory species, and from an international political perspective, building upon existing or emerging institutions. An approach which divides the Pacific into three subregions along the lines we envision is not a perfect division from either a scientific or a political perspective. But we believe it is logical and provides us with a solid practical basis upon which to proceed.

In the Eastern Pacific Ocean, the Inter-American Tropical Tuna Commission (IATTC) is responsible by treaty for the conservation and management of highly migratory species in that region. The IATTC is a strong international organization which is performing well and we need to continue to support it in the forseeable future for the conservation and management of all highly migratory species within its area of responsibility.

In the Western Pacific, there are efforts underway to address international conservation and management issues. As you know, we need to proceed carefully in this area due to the concerns of the South Pacific island nations. We are working cooperatively with the island nations through the South Pacific Forum Fisheries Agency and expect there to be movement towards an effective international regime for the conservation and management of those species.

In the North Pacific, the Interim Scientific Committee for Tuna and Tuna-like Species will be getting off the ground soon. This Committee should lay the groundwork necessary for the conservation and management of highly migratory species in the North Pacific Ocean.

Our paper does not answer all the questions but it does propose the foundation of the position. If you agree, I would propose a joint State/NMFS effort to vet this with the Councils, States, territories and constituent and public interests groups. Once we have their agreement and general concurrence, we will proceed internationally.

Regarding U.S. domestic management efforts, we believe that it is crucial for the United States to know the catch levels and related scientific information regarding the fishing activities of U.S. vessels, wherever such fisheries occur. I hope that NMFS will take the lead in developing this information base for Pacific highly migratory species.

I look forward to working with you as we proceed.

Sincerely,

David A. Colson
Ambassador
Deputy Assistant Secretary
for Oceans

Enclosure: a/s

cc: Hilda Diaz-Saltero
Will Martin

A VISION FOR THE INTERNATIONAL CONSERVATION AND MANAGEMENT OF PELAGIC FISH STOCKS IN THE PACIFIC OCEAN

Vision Statement

Pelagic fish stocks throughout the Pacific Ocean should be managed in a manner that ensures their long-term maximum sustainable use, and that is consistent the UN Fish Stocks Agreement and U.S. interests. U.S. policy should be to strengthen, harmonize or create, where necessary, international institutions to achieve these goals.

Introduction

The long-term conservation and sustainable use of pelagic fish species in the Pacific Ocean is in the national interest of the United States. With the exception of a management regime in the eastern Pacific, most pelagic stocks in the Pacific Ocean, including species of tuna, swordfish and billfish, are not now managed through regional organizations or arrangements. Fortunately, most Pacific pelagic stocks are not overfished, but the status of some are of increasing concern. In all likelihood, however, fishing effort for these stocks will increase, thereby significantly raising the prospect that overfishing will lead to their depletion.

To prevent the depletion of pelagic fish stocks in the Pacific, the United States must articulate a vision for the international conservation and management of these stocks. This vision is predicated on three fundamental principles: (1) pelagic fish stocks in the Pacific Ocean should be managed in accordance with the 1995 United Nations Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks; (2) the Pacific Ocean is too large and the issues of each subregion too complex for most Pacific pelagic fish stocks to be managed effectively by one ocean-wide fishery organization; and (3) flexibility since much of the initial focus in institutional building needs to be on data gathering and sharing, ensuring full participation, and setting the stage for management decisions when needed.

The United States believes that effective conservation and management of these stocks would be best accomplished through three subregional fisheries organizations or arrangements covering the eastern Pacific, the central/southern Pacific and the northern Pacific subregions. However, as our understanding of the distribution of certain species suspected to have ocean-wide distribution (i.e. swordfish) improves, we may wish to consider developing a management regime with a broader geographic scope for such fish stocks or to ensure coordination among the subregions.

Background

The United States has interests in the long-term conservation and management of Pacific pelagic fish stocks as a coastal State and as a distant water fishing State.

Coastal State Interests. the United States exercises coastal State interests with regard to the states and territories of the U.S. which border the Pacific Ocean through the Pacific and Western Pacific Fishery Management Councils. The states and territories with particular interests in pelagic stocks include California, Hawaii, Guam, American Samoa, the Northern Marianas and other island territories, and

from time to time the other West Coast states. The specific interests of these states and territories are not necessarily similar and these differences will have to be incorporated in our international efforts.

Distant Water Fishing Interests. The United States has interests as a distant water fishing State through the activities of U.S.-flag fishing vessels (particularly purse seiners, long liners and trollers) on the high seas and in the EEZs of several countries in the south, central and western portions of the Pacific Ocean (such as under the terms of the Tuna Fisheries Treaty). Some U.S.-flag vessels may also fish for tuna within the EEZs of foreign countries in the eastern Pacific Ocean region.

Complicating Factors. The process of advancing these interests and the international management of Pacific pelagic fish stocks are complicated by several factors, including:

1. The enormous size of the Pacific Ocean basin;

2. The ranges of individual stocks for the most part are varied and there is not full scientific agreement on the distribution of certain stocks;

3. The wide diversity of interests of States involved in Pacific pelagics, i.e.:

   - the states and territories of the United States;

   - other coastal States which border the Pacific including, those of Latin America (from Mexico to Chile), small island developing countries of the central/western and South Pacific, Australia and New Zealand, Asian nations (from Japan to Indonesia), and perhaps Canada;

   - States which are not Pacific coastal States, but have island territories in the Pacific, namely France and the United Kingdom;

   - States which are not coastal States of the temperate or tropical Pacific, but which fish in the region, namely Korea, Russia, the People's Republic of China, the EU, Taiwan and perhaps others;

4. Diversity of interests of the various U.S. fishing industries involved in Pacific pelagics, including: target species, gear used, area of fishing operations, where the harvested fish is processed, by-catch issues, and fishing vessel mobility among the various subregions and fisheries;

5. Several international institutions/organizations exist with various mandates, namely the Inter-American Tropical Tuna Commission, the South Pacific Forum Fisheries Agency, the South Pacific Commission, the Interim Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean, and the Asia Pacific Fishery Commission.

U.S. Vision for Managing Pelagic Fish Stocks in the Pacific Ocean Region

The United States believes that Pacific Ocean pelagic fish stocks should be managed in accordance with the 1995 UN Agreement on Straddling Fish Stocks and Highly Migratory Fish Stocks, and through three subregional fishery organizations or arrangements.

The United States supports the Agreement, and believes that it is fully consistent with and strengthens the provisions of the 1982 United Nations Convention on the Law of the Sea dealing with the management of highly migratory fish stocks. The Agreement strikes a reasonable balance between conservation and fishing concerns, and between the interests of coastal States and States whose vessels fish on the high seas. The Agreement establishes new and effective rules to conserve and manage marine fisheries, and provides for States to resolve their disputes through compulsory binding dispute settlement procedures. Of particular relevance to advancing the U.S. vision for Pacific pelagic stocks, the Agreement clarifies and strengthens the role and responsibilities of regional and subregional fishery organizations and arrangements, and calls upon States to establish such organizations or arrangement where none exist.

In the Atlantic Ocean, the International Commission for the Conservation of Atlantic Tunas (ICCAT), has an ocean-wide mandate to manage and conserve pelagic species. A similar ocean-wide approach is possible in the Pacific, but perhaps is not appropriate because of the complicating factors noted above. Instead, our vision for the Pacific is based on a subregional approach, bearing in mind that the distribution of each stock (based upon the best scientific evidence), should be a consideration in determining subregional management responsibilities, but the complicating factors noted above also will have determining influence. Our approach calls for building upon existing institutions where they exist, and working to create institutions were none are present. At some future time, coordination among the subregions may be called for; indeed, it should not be ruled out and should be planned for. The key effort for the near term is to strengthen the subregional institutions in a coordinated and conceptually consistent manner.

Stock Distribution

The distribution of pelagic species in the Pacific Ocean must be taken into account in developing the proper structure for their international management. As shown in this section, some species such as skipjack and yellowfin tuna demonstrate a predominant east-west distribution, others such as albacore tuna, striped marlin and dolphin fish appear to have distinct northern and southern hemisphere stocks, while bigeye tuna and blue marlin appear to have an ocean-wide range.The distribution of swordfish and wahoo is largely uncertain. While in principle the United States favors management throughout the migratory range of a stock, to follow this principle invariably, however, in developing pelagic fishery management institutions in the Pacific will lead to overlap and other difficulties associated with the complicating factors noted above. Accordingly, a practical approach will need to be devised promoting cooperation among the subregions.

Skipjack. Skipjack is the most tropical of tuna species and is known to travel widely in large surface schools throughout the year in the equatorial zone (10^{o}N-10^{o}S). During the summer months, skipjack also travel into higher latitudes particularly off the coasts of eastern Australia, New Zealand and Japan. Although contradictory results of genetic studies indicate uncertainty about stock structure, it is possible to consider Pacific skipjack as a single stock. Moreover, for assessment purposes, it is also probably appropriate to consider skipjack in the western/central Pacific as a single distinct stock. It appears that skipjack in the eastern Pacific originate mainly from spawning in the central/western Pacific.

Yellowfin. Yellowfin are found extensively in the Pacific Ocean between 40^{o}N and 40^{o}S. Tagging results show extensive movement between 120^{o}E and 170^{o}W. No yellowfin tagged west of 170^{o} have been reported as recaptured in the eastern Pacific purse seine fishery (although several recoveries have been reported by longliners operating east of 150^{o}W). Furthermore, no yellowfin tagged in the eastern Pacific fishery have been reported as recaptured west of 150^{o}W. This information suggests that there are separate eastern and western/central stocks with little inter-mixing as juveniles. Yellowfin spawn throughout the Pacific.

Bigeye. Knowledge of the long-distance movement of bigeye tuna is hampered due to limited tagging of this species. Although there is little evidence of mixing throughout the Pacific, the current assumption is that bigeye tuna have a Pacific-wide distribution (but this hypothesis could easily be wrong). Bigeye spawn between 30^{o}N and 20^{o}S in the western

Pacific and between the equator and 20°N in the eastern Pacific. The concentration is greatest in the western and eastern Pacific, with a lesser concentration in the area 180°-150°W.

Albacore. Albacore are the most temperate of the tuna species. Pacific albacore are distributed into two distinct stocks in the North and South Pacific with a clear discontinunity between 10°S and 10°N, with no record of trans-equatorial movement among tagged albacore. Within the southern zone, albacore have demonstrated extensive east-west movement and should be treated as a single stock. Albacore spawn in subtropical waters of the North and South Pacific with little or no spawning in the equatorial region.

Striped Marlin. Separate north and south Pacific sub-stocks are assumed on the basis of a north-south separation of spawning grounds, except in the equatorial eastern and western Pacific.

Blue Marlin. Pacific blue marlin are believed to belong to a single ocean-wide stock due to an observed homogeneous distribution of larval and adult fish.

Swordfish. The stock structure of swordfish in the Pacific Ocean is unclear. The distribution of catch statistics indicate the possibility of at least north and south Pacific stocks.

Dolphin fish and Wahoo. Dolphin fish appear to be distributed into separate north and south Pacific stocks. Little is known on the distribution of wahoo.

Subregional Organizations

In general, there are five subregional institutions in the Pacific Ocean region with varying mandates for the management and conservation of pelagic fish stocks. These institutions are: the Inter-American Tropical Tuna Commission (IATTC) covering the eastern Pacific; the South Pacific Forum Fisheries Agency and the South Pacific Commission covering the central, western and South Pacific; the Interim Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean; and the Asia Pacific Fishery Commission (APFC) covering the far western Pacific. At this point the APFC is not discussed further, but the role of this organization vis-a-vis the U.S. strategy for Pacific pelagics should be addressed at a later time.

There is some overlap in the geographic areas of responsibility of the IATTC, the Interim Scientific Committee for Tuna and Tuna-Like Species, and the South Pacific Forum Fisheries Agency and the South Pacific Commission . What is important, however, is to have a clear understanding of which fisheries will be monitored and managed by which institution, and the associated stocks or stock components that should fall within the ambit of those institutions. This will provide the direction for future policy development and negotiations. This section discusses these three subregional institutions, and the fisheries and stocks we believe should be under their respective purview.

IATTC. The IATTC was established in 1949 and has responsibility in the eastern Pacific Ocean (there is no precise definition of this area by lines of longitude or latitude, but in 1962 the Commission established the Yellowfin Regulatory Area with specific boundary lines). Current members include Costa Rica, France, Japan, Nicaragua, Panama, the United States, Venezuela and Vanuatu. The IATTC is both a well known and respected international fisheries organization. Its fisheries management focus has been on yellowfin tuna, which it has managed sustainably for nearly 40 years. It also has responsibility for skipjack, fish used as bait for tuna and "other kinds of fish taken by tuna fishing vessels in the eastern Pacific Ocean". The status of these other stocks is also generally favorable. The IATTC staff has conducted studies on other species of tuna including bigeye, black skipjack, bluefin and albacore, and billfish.

Since the 1980's, the IATTC has increasingly found itself involved in efforts to reduce the incidental take of dolphins in the yellowfin purse seine fishery. In 1992, the IATTC adopted the La Jolla Agreement. This Agreement has dramatically reduced dolphin mortality to less than 5,000 dolphins annually. In October 1995, the IATTC adopted the Panama Resolution which seeks to put into effect an agreement negotiated between Mexico and several environmental non-governmental organizations. If approved by all participating governments, the Panama Resolution would strengthen the La Jolla Agreement, allow the importation into the United States of yellowfin tuna from countries currently prohibited from doing so, and would revise the definition of "dolphin safe" tuna. This development would enable U.S.-flag tuna fishing vessels to return to this area, which most departed during the mid-1980's.

Associated with the Panama Declaration of October 1995, the participating governments expressed a willingness to initiate negotiations to adopt a new binding instrument, consistent with the UN Fish Stocks Agreement, to manage the region's pelagic fish stocks. This new binding instrument

would utilize, to the maximum extent possible, the existing structure of the IATTC, but is contingent upon enactment of changes in U.S. law. From the known information on Pacific pelagic stock distribution, it appears that the IATTC should continue to exercise management responsibility over the stocks it currently manages.

For those species whose distribution is unclear (particularly swordfish and bigeye tuna), the IATTC should intensify its research on these species and share such data with other States and regional fisheries organizations. When the distribution of these stocks in better understood, the IATTC should work with other regional organizations to determine the most effective method to ensure their long-tern conservation and sustainable use, and take steps accordingly. At some stage, if supported by scientific evidence that these stocks have ocean-wide distribution, consideration could be given to establishing an appropriate ocean-wide organization or arrangement.

South Pacific Forum Fisheries Agency and the South Pacific Commission. The South Pacific Forum was established in 1979. Current members include Australia, New Zealand, Cook Islands, Federate States of Micronesia, Fiji, Kiribati, Marshall Islands, Nauru, Niue, Palau, Papau New Guinea, Solomon Islands, Tonga, Tuvalu, Vanuatu and Western Samoa.

The Forum Fisheries Agency (FFA) is the institution charged with overseeing the Forum's interests in fisheries issues in the central, western and South Pacific Ocean. The FFA has competence over all living marine resources including highly migratory species. Pelagic fish stocks of particular interest include tunas (such as albacore, yellowfin, bigeye and skipjack), swordfish, billfish and sharks. Fishery data on the status of these stocks is incomplete and there is concern that some stocks, such as albacore and swordfish, may be stressed.

Another organization active in this region is the South Pacific Commission (SPC). The SPC was created in 1947 and is active in other issues besides fisheries. The SPC includes FFA-member countries plus those nations with overseas territories in the region, namely, France, the United Kingdom and the United States. The SPC is involved in both coastal fisheries (involving all living marine resources), and oceanic fisheries (dealing exclusively with tunas and billfish).

In 1987, the United States and 16 Pacific island States (which are also members of the FFA), entered into the Treaty on Fisheries Between the Governments of Certain Pacific Island States and the Government of the United States. This Treaty

is considered to be the cornerstone of U.S. fisheries relations with the South Pacific island States. The Treaty establishes the terms and conditions for up to 50 U.S.-flag vessels to fish tuna throughout a broad area of the South Pacific Ocean, including within the 200-mile zones of some FFA nations. In return, a total of $18 million is provided to the FFA each year, of which $14 million is from the United States Government and $4 million from the U.S. tuna industry. Since its adoption, the Treaty has been a tremendous success. It has forged greater ties of cooperation between the United States and the small island nations of the South Pacific.

Currently, no regional or multinational fishery conservation and management organization or arrangement exits in the South Pacific as called for by the UN Fish Stocks Agreement. Our view is that the long term sustainable use of the South Pacific tuna fisheries would be enhanced with some kind of regional management authority. At the Sixteenth South Pacific Forum meeting (September 13-15, 1995), the Forum issued a communique which is consistent with our vision for pelagic management in two ways. First, the Forum indicated support for concluding additional multilateral fishing agreements with distant water fishing nations. Second, the Forum stated that in light of the UN Fish Stocks Agreement, the region should consider "as a matter of urgency" the development of a comprehensive regional fisheries management arrangement and structure consistent with the UN Agreement.

Another important recent development was the Multilateral High-Level Conference on South Pacific Tuna Fisheries, held in Honiara, Solomon Islands in December of 1994. This Conference provided an opportunity for coastal States of the region and distant water fishing nations to discuss, at a high level, tuna fishery matters.

The participants at the meeting reached a common understanding on the need for sustainable development of the region's tuna resources, the importance of fishing responsibly in the region, the importance of effective fishery enforcement, and the need for co-operation between coastal States and distant water fishing States. The Conference participants also agreed to consult on the development of a regional vessel monitoring system, and to consider ways to improve the collection and exchange of fishery data.

The developments at the South Pacific Forum meeting and at the Honiara Conference offer an excellent opportunity for the United States to advance its vision for the international management of pelagic fish stocks in this subregion. The United States should work closely with the FFA and the other distant water fishing States, which operate in the area,

toward the development of a subregional fishery management structure which is consistent with the UN Fish Stocks Agreement. Based on current scientific evidence, this subregional fisheries organization/institution should exercise management responsibility for western stocks of skipjack and yellowfin tuna, the southern stocks of albacore tuna, bigeye tuna, billfish and dolphin fish.

As in the case of the IATTC, the FFA and SPC, along with scientists from interested governments, should intensify their research activities for those stocks whose distribution is unclear and perhaps ocean-wide, and share such data with other States and regional fisheries organizations. When the distribution of these stocks in better understood, the FFA should work with other regional organizations to determine the most effective method to ensure the long-term conservation and sustainable use of such stocks.

Interim Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean. Presently, no fisheries organization exists to address the management and conservation needs of pelagic fish stocks in the North Pacific. Pelagic species found in the North Pacific include albacore tuna, swordfish, billfish and sharks. Data on the status of these stocks are incomplete. A first step to create a fishery management organization for North Pacific pelagic fish stocks occurred in January 1995, when the United States and Japan announced the formation of the Interim Scientific Committee for Tuna and Tuna-Like Species in the North Pacific Ocean. In forming the Committee, the two countries noted the need to develop better information on stocks of tuna and tuna-like species in the North Pacific, to work in conjunction with relevant fisheries organizations, and to enhance the scientific knowledge throughout the migratory range of these species. The Committee is expected to meet for the first time in 1996.

The purposes of the Committee are twofold. First, to enhance scientific research and cooperation for the conservation and rational utilization of the species of tuna and tuna-like fish stocks found in the North Pacific. Second, to establish the scientific groundwork, so at some future time a multilateral regime for the conservation and rational utilization of the region's pelagic fish stocks may be created. Membership in the Committee is open to all coastal States of the region, and States whose vessels fish for tuna and tuna-like species in the region.

Among its functions, the Committee is to regularly assess and analyze fishery and other information, prepare reports, formulate proposals, and coordinate international and national research programs on the relevant species.

Clearly the process to create an institution to manage pelagic fish stocks in the North Pacific has just begun. This situation, however, offers a special opportunity for the United States to realize its vision in this subregion. Our first priority in this effort should be to encourage other coastal and fishing States to become members of the Committee. As the Committee matures and assumes greater responsibilities, we should work to ensure that the institution adopts policies and procedures consistent with the UN Fish Stocks Agreement. Based on current information, this institution should take responsibility for northwest Pacific stocks of skipjack and yellowfin tuna, the northern stocks of albacore tuna, bill fish and dolphin fish. As in the other subregions, the Committee should increase its research efforts to gain a better understanding of the distribution of swordfish and other species on which limited information is available.

Concluding Comments and Next Steps

Despite the absence of precise information on the distribution of all Pacific pelagic fish stocks, the international management of these fishery resources for the foreseeable future will be accomplished best at the subregional level. Our initial approach should focus on institution building, data collection, and involving all the participants in the various Pacific pelagic fisheries.

The next step in achieving our goal is to enlist the support of the U.S. fishing industry, relevant U.S. coastal states and island territories, the Councils, and the environmental community. Thereafter, we will develop a strategy that will make our vision a reality. This strategy will consider priorities among subregions, opportunities for bilateral and multilateral discussions, and linkages with other Pacific-wide or subregional issues that can contribute to our goal, and the role that U.S. constituent interests will play in this process.

Implementing this strategy will strengthen the current subregional fisheries institutions found in the Pacific and help us to ensure the long-term management and sustainable use of Pacific Ocean pelagic fish stocks consistent with the UN Fish Stocks Agreement.

APPENDIX D. U.N. PRECAUTIONARY APPROACH TO FISHERIES

UNITED
NATIONS

A

General Assembly

Distr.
GENERAL

A/CONF.164/33
3 August 1995

ORIGINAL: ENGLISH

UNITED NATIONS CONFERENCE ON
STRADDLING FISH STOCKS AND
HIGHLY MIGRATORY FISH STOCKS
Sixth session
New York, 24 July-4 August 1995

DRAFT AGREEMENT FOR THE IMPLEMENTATION OF THE PROVISIONS OF THE UNITED NATIONS CONVENTION ON THE LAW OF THE SEA OF 10 DECEMBER 1982 RELATING TO THE CONSERVATION AND MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS

Proposal by the Chairman

PART II

CONSERVATION AND MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS

Article 5

General principles

In order to conserve and manage straddling fish stocks and highly migratory fish stocks, coastal States and States fishing on the high seas shall, in giving effect to their duty to cooperate in accordance with the Convention:

(a) adopt measures to ensure long-term sustainability of straddling fish stocks and highly migratory fish stocks and promote the objective of their optimum utilization;

(b) ensure that such measures are based on the best scientific evidence available and are designed to maintain or restore stocks at levels capable of producing maximum sustainable yield, as qualified by relevant environmental and economic factors, including the special requirements of developing States, and taking into account fishing patterns, the interdependence of stocks and any generally recommended international minimum standards, whether subregional, regional or global;

(c) apply the precautionary approach in accordance with article 6;

(d) assess the impacts of fishing, other human activities and environmental factors on target stocks and species belonging to the same ecosystem or dependent upon or associated with the target stocks;

(e) adopt, where necessary, conservation and management measures for species belonging to the same ecosystem or dependent on or associated with the target stocks, with a view to maintaining or restoring populations of such species above levels at which their reproduction may become seriously threatened;

(f) minimize pollution, waste, discards, catch by lost or abandoned gear, catch of non-target species, both fish and non-fish species, (hereinafter referred to as non-target species) and impacts on associated or dependent species, in particular endangered species, through measures including, to the extent practicable, the development and use of selective, environmentally safe and cost-effective fishing gear and techniques;

(g) protect biodiversity in the marine environment;

(h) take measures to prevent or eliminate over-fishing and excess fishing capacity and to ensure that levels of fishing effort do not exceed those commensurate with the sustainable use of fishery resources;

/...

(i) take into account the interests of artisanal and subsistence fishers;

(j) collect and share, in a timely manner, complete and accurate data concerning fishing activities on, inter alia, vessel position, catch of target and non-target species and fishing effort, as set out in Annex I, as well as information from national and international research programmes;

(k) promote and conduct scientific research and develop appropriate technologies in support of fishery conservation and management; and

(l) implement and enforce conservation and management measures through effective monitoring, control and surveillance.

Article 6

Application of the precautionary approach

1. States shall apply the precautionary approach widely to conservation, management and exploitation of straddling fish stocks and highly migratory fish stocks in order to protect the living marine resources and preserve the marine environment.

2. States shall be more cautious when information is uncertain, unreliable or inadequate. The absence of adequate scientific information shall not be used as a reason for postponing or failing to take conservation and management measures.

3. In implementing the precautionary approach, States shall:

(a) improve decision-making for fishery resource conservation and management by obtaining and sharing the best scientific information available and implementing improved techniques for dealing with risk and uncertainty;

(b) apply the guidelines set out in Annex II and determine, on the basis of the best scientific information available, stock-specific reference points and the action to be taken if they are exceeded;

(c) take into account, inter alia, uncertainties relating to the size and productivity of the stocks, reference points, stock condition in relation to such reference points, levels and distributions of fishing mortality and the impact of fishing activities on non-target and associated or dependent species, as well as existing and predicted oceanic, environmental and socio-economic conditions; and

(d) develop data collection and research programmes to assess the impact of fishing on non-target and associated or dependent species and their environment, and adopt plans which are necessary to ensure the conservation of such species and to protect habitats of special concern.

/...

4. States shall take measures to ensure that, when reference points are approached, they will not be exceeded. In the event that they are exceeded, States shall, without delay, take the action determined under paragraph 3(b) to restore the stocks.

5. Where the status of target stocks or non-target or associated or dependent species is of concern, States shall subject such stocks and species to enhanced monitoring in order to review their status and the efficacy of conservation and management measures. They shall revise those measures regularly in the light of new information.

6. For new or exploratory fisheries, States shall adopt as soon as possible cautious conservation and management measures, including, inter alia, catch limits and effort limits. Such measures shall remain in force until there are sufficient data to allow assessment of the impact of the fisheries on the long-term sustainability of the stocks, whereupon conservation and management measures based on that assessment shall be implemented. The latter measures shall, if appropriate, allow for the gradual development of the fisheries.

7. If a natural phenomenon has a significant adverse impact on the status of straddling fish stocks or highly migratory fish stocks, States shall adopt conservation and management measures on an emergency basis to ensure that fishing activity does not exacerbate such adverse impact. States shall also adopt such measures on an emergency basis where fishing activity presents a serious threat to the sustainability of such stocks. Measures taken on an emergency basis shall be temporary and shall be based on the best scientific evidence available.

Article 7

Compatibility of conservation and management measures

1. Without prejudice to the sovereign rights of coastal States for the purpose of exploring and exploiting, conserving and managing the living marine resources within areas under national jurisdiction as provided for in the Convention, and the right of all States for their nationals to engage in fishing on the high seas in accordance with the Convention:

(a) with respect to straddling fish stocks, the relevant coastal States and the States whose nationals fish for such stocks in the adjacent high seas area shall seek, either directly or through the appropriate mechanisms for cooperation provided for in Part III, to agree upon the measures necessary for the conservation of these stocks in the adjacent high seas areas;

(b) with respect to highly migratory fish stocks, the relevant coastal States and other States whose nationals fish for such stocks in the region shall cooperate, either directly or through the appropriate mechanisms for cooperation provided for in Part III, with a view to ensuring conservation and promoting the objective of optimum utilization of such stocks throughout the region, both within and beyond the areas under national jurisdiction.

Annex II

GUIDELINES FOR APPLICATION OF PRECAUTIONARY REFERENCE POINTS IN CONSERVATION AND MANAGEMENT OF STRADDLING FISH STOCKS AND HIGHLY MIGRATORY FISH STOCKS

1. A precautionary reference point is an estimated value derived through an agreed scientific procedure, which corresponds to the state of the resource and of the fishery, and which can be used as a guide for fisheries management.

2. Two types of precautionary reference points should be used: conservation, or limit, reference points and management, or target, reference points. Limit reference points set boundaries which are intended to constrain harvesting within safe biological limits within which the stocks can produce maximum sustainable yield. Target reference points are intended to meet management objectives.

3. Precautionary reference points should be stock-specific to account, inter alia, for the reproductive capacity, the resilience of each stock and the characteristics of fisheries exploiting the stock, as well as other sources of mortality and major sources of uncertainty.

4. Management strategies shall seek to maintain or restore populations of harvested stocks, and where necessary associated or dependent species, at levels consistent with previously agreed precautionary reference points. Such reference points shall be used to trigger pre-agreed conservation and management action. Management strategies shall include measures which can be implemented when precautionary reference points are approached.

5. Fishery management strategies shall ensure that the risk of exceeding limit reference points is very low. If a stock falls below a limit reference point or is at risk of falling below such a reference point, conservation and management action should be initiated to facilitate stock recovery. Fishery management strategies shall ensure that target reference points are not exceeded on average.

6. When information for determining reference points for a fishery is poor or absent, provisional reference points shall be set. Provisional reference points may be established by analogy to similar and better-known stocks. In such situations, the fishery shall be subject to enhanced monitoring so as to enable revision of provisional reference points as improved information becomes available.

7. The fishing mortality rate which generates maximum sustainable yield should be regarded as a minimum standard for limit reference points. For stocks which are not over-fished, fishery management strategies shall ensure that fishing mortality does not exceed that which corresponds to maximum sustainable yield, and that the biomass does not fall below a pre-defined threshold. For over-fished stocks, the biomass which would produce maximum sustainable yield can serve as a rebuilding target.